Japanese fishes. The Elasmobranchs, or sharks, rays and chimæras are represented by 56 species. Other papers are on the Cobitidæ or Loaches, six species in Japan, and on the Cepolidæ or Band-fishes, of which Japan has three. The genera, Embolichthys and Zen are subjects of a special paper.

In the *Annotationes Zoologicæ Japonenses* (Vol. IV) of the Imperial University of Tokyo, Dr. Bashford Dean gives an account of the cleavage of the egg in the cestraciont shark *Heterodontus japonicus*. He finds on the egg certain marks or lines reminiscent of holoblastic cleavage. D. S. J.

Gardiner's "Maldive and Laccadive Archipelagoes," Part IV.[1]—The fourth part of Gardiner's Fauna and Geography contains seven papers including a detailed description, with charts, of the Atolls and Banks—a valuable contribution to geography but not abstractable. In his concluding notes Gardiner touches on the causes of deaths of parts of the coral reefs. Silting up is destructive and senile decay, after the colony has reached a great size, causes great mortality.

The Cephalochorda are described systematically and anatomically by C. F. Cooper while R. C. Punnett considers their variation. A new species, *Heteropleuron maldivense* is described. In the conclusions as to the great variability of Cephalochorda based on the number of myotomes the possibility of an increase in the number of myotomes throughout life is not sufficiently considered.

The Avifauna is analyzed by Gadow. Twenty-six species were examined; none peculiar to the islands. The permanent residents are, excepting the Indian crow, *Corvus splendens*, all water birds, mostly of wide distribution in the Old World. Eight genera of birds are winter visitors from the Asiatic continent and a few species are wanderers from India and Ceylon. Finches, starlings and pigeons are wholly absent. At one point in the Archipelago it was observed that all birds retired daily from 11 A. M. to 3 P. M.

The earthworms are reported upon by Beddard. He comments on the favorable material afforded by this group for studies in geographic variation owing to impracticability of their unassisted migration over a tract of sea. Three species are recorded, two are very common

[1] *The Fauna and Geography of the Maldive and Laccadive Archipelagoes*, etc. Edited by J. Stanley Gardiner. Cambridge University Press, 1903. Vol. i, pt. iv, pp. xix+348–471, pls. 18–25, text figs. 76–119.

and widespread oriental species; the third is a new Pontodilus — a seashore inhabitant.

The classification of crabs is undertaken by Borradaile, who thereupon describes the crabs from the Archipelagoes belonging to the Catometope and Oxystomata. As before, especial stress is laid on bionomics and adaptations. A collection of 16 species of Barnacles is also described. Most of them are Indo-Pacific species, but two occur in the West Indes. Lanchester's study of the Stomatopods, based as it is on the study of individual variation will be of interest and, it is hoped, of instruction to the species splitter. Excepting two specimens of *Pseudosquilla ciliata* all the adults belong to the world-wide *Gonodactylus chiragra*, including seven synonyms. Gonodactylus lives *on the surface* of reefs and is abundant here. Squilla, which demands mud to burrow in, is absent; because the mud is. This is another illustration of the law that the habitat of a species is determined by its instincts. The author introduces "*term*" to express the extremes of structural type in a continuous variation.

Finally the Lithothamnia are described by M. Foslie, who combats the erroneous notion that these Algæ are more abundant in tropical than in northern seas.

C. B. D.

Webster's "Diffusion of Insects in North America."—In the April number of *Psyche* we have a very interesting article on the above subject, from the pen of Professor F. M. Webster, who has already contributed various papers of the same general nature to our entomological journals.

The problem of the nature and extent of destruction of life during the Glacial epoch is but barely touched upon, the intention of the author being to show how post-glacial distribution has been accomplished. He points out that with the retreat of the ice three gateways for the introduction of species into this continent were open — (1) the Alaskan chain for Asiatic insects, (2) Central America for forms from South America, and (3) Florida, by way of the West Indies as an alternative to the Central American route. All new life depending to any large extent upon land for its introduction must come by some one of these three roads, the agency of man in the matter being of so recent an origin as to need separate consideration.

The northwestern gateway, leading from Asia, seems to have been taken advantage of by numerous Coccinellidæ and certain Chrysome-